Example (Synth. Att)

semantic actions

$E \to E_1 * E_2$ { E.val = E_1.val * E_2.val }

$E \to E_1 + E_2$ { E.val = E_1.val + E_2.val }

$E \to id$ { E.val = id.val }

Attribute val (value)

E.val

id.val

dependency

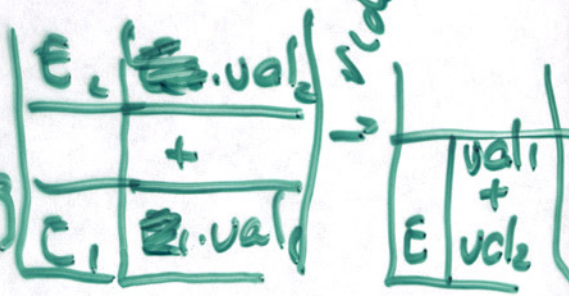
$A \to C_1 C_2 \dots C_n$

$A.val = f(C_1.val, \dots, C_n.val)$

we could use another att

any attribute

Synthesized attributes $\leftrightarrow$ Bottom up parsing



Example 2 (Inherited Attributes)

Decl → Type VarList { VarList.type = Type.type }

Type → int | bool | ... { Type.type = int }

VarList → id , VarList$_1$ { id.type = VarList.type ; VarList$_1$.type = VarList.type }

VarList → id { id.type = VarList.type }

int x, y

Attribute (Type)

Type.type

VarList.type

id.type

Decl.type (?)

$A \rightarrow C_1 C_2 \dots C_n$

$C_k.type = f(A, C_1, \dots, C_n)$ $C_i \neq C_k$

For this rule

$C_{k+1} = f(A, C_1, \dots, C_k)$

inherited attributes ⟷ top down parsing

Pred. Parsing : VarList(type)